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CLAIM AMENDMENTS:

Please amend claims 1, 10, 19, and 20 as follows:

1. (Twice Amended) A system for emitting x-rays comprising:
an x-ray emitter;
a controller operably connected to the x-ray emitter;
a current sensor operably connected to the controller; and
a voltage sensor operably connected to the controller; wherein the
controller determines an actual dose rate based on an emitter cut-off energy, a radiation
depth, and received current and voltage sensor signals, and a received voltage sensor
signal and adjusts an applied voltage to allow the actual dose rate to match a
predetermined dose rate; wherein the applied voltage is increased when the actual dose
rate is less than the predetermined dose rate, and the applied voltage is decreased when
the actual dose rate is greater than the predetermined dose rate.
2. (Original) The system of claim 1 wherein the current sensor measures the
current through the x-ray emitter a plurality of times per second.
3. (Original) The system of claim 1 wherein the voltage sensor measures the
voltage through the x-ray emitter a plurality of times per second.
4. (Original) The system of claim 1 wherein the controller adjusts the actual
dose rate based on an irradiation depth.
5. (Original) The system of claim 1 wherein the actual dose rate is calculated
a plurality of times per second.

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6. (Original) The system of claim 1 wherein the actual dose rate is determined according to:

$D = f \times I \times (V - V_0)^2$; wherein

D = the actual dose rate at a distance r from the emitter,

f = a constant,

I = a current through the x-ray emitter,

V = a voltage applied across an anode and a cathode, and

V_0 = a constant.

7. (Original) The system of claim 1 wherein the controller adjusts the actual dose rate by correcting for tissue radiation absorption.

8. (Original) The system of claim 1 wherein the controller adjusts the actual dose rate by correcting for an increased target area with an increasing treatment radius.

9. (Original) The system of claim 1 further comprising a current integrator operably connected to the current sensor and the controller to integrate instant current values over time to determine an accumulated charge.

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10. (Twice Amended) A method of operating a device for emitting x-rays comprising:
applying a voltage from a voltage source to the device;
measuring current and voltage within the device;
determining an actual dose rate based on an emitter cut-off energy, a radiation depth, and the measured current and voltage;
comparing a desired dose rate to the actual dose rate;
increasing the applied voltage when the actual dose rate is less than the predetermined dose rate; and
decreasing the applied voltage when the actual dose rate is greater than the predetermined dose rate.

11. (Original) The method of claim 10 wherein the measuring of the current and voltage comprises sampling the current and voltage a plurality of times per second.

12. (Original) The method of claim 10 wherein the determining of the actual dose rate comprises adjusting for an irradiation depth.

13. (Original) The method of claim 10 wherein the determining of the actual dose rate comprises correcting for tissue radiation absorption.

14. (Original) The method of claim 10 wherein the determining of the actual dose rate comprises calculating the actual dose rate a plurality of times per second.

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15. (Original) The method of claim 10 wherein the determining of the actual dose rate comprises calculating the actual dose rate according to:

$$D = f \times I \times (V - V_0)^2; \text{ wherein}$$

D = the actual dose rate at a distance r from the emitter,

f = a constant,

I = a current through the x-ray emitter,

V = a voltage applied across an anode and a cathode, and

V_0 = a constant.

16. (Original) The system of claim 10 wherein the determining of the actual dose rate comprises integrating instant current values over time to determine an accumulated charge.

17. (Original) The method of claim 10 wherein the adjusting of the applied voltage comprises stabilizing the actual dose rate.

18. (Original) The method of claim 10 further comprising selecting the desired dose rate by an operator.

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19. (Twice Amended) A computer usable medium storing a program comprising;
computer readable code for applying a voltage from a voltage source to the device;
computer readable code for measuring current and voltage within the device;
computer readable code for determining an actual dose rate based on an emitter cut-off energy, a radiation depth, and the measured current and voltage;
computer readable code for comparing a desired dose rate to the actual dose rate;
computer readable code for increasing the applied voltage when the actual dose rate is less than the predetermined dose rate; and
computer readable code for decreasing the applied voltage when the actual dose rate is greater than the predetermined dose rate.

20. (Twice Amended) A system for emitting x-rays comprising:
means for measuring current and voltage;
means for determining an actual dose rate based on an emitter cutoff energy, a radiation depth, and a measured current and voltage;
means for comparing a desired dose rate to the actual dose rate; and
means for matching the actual dose rate to the desired dose rate by increasing and decreasing an applied voltage.